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REMARKS

Claims 1-12 and 17-23 are pending, with claims 1, 3, 4, and 17-19 being independent. Claims 13-16 were previously cancelled without prejudice. Reconsideration and allowance of the above-referenced application are requested.

Claims 1 and 3-17 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Ishikawa (US 6,066,829) in view of Flint (US 6,351,324). Claim 2 stands rejected under 35 USC 103(a) as allegedly being unpatentable over Ishikawa in view of Flint and further in view of Woelki et al. (US 5,329,090). Claims 18-23 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Ishikawa in view of O'Brien et al. (US 6,676,878). These contentions are respectfully traversed.

A *prima facie* case of obviousness has not been established for any of the pending claims. Ishikawa describes a laser marker that marks a workpiece surface by laser beam scanning using two galvanometer controlled mirrors, where a virtual marking test is performed to facilitate mark positioning for a character pattern to be marked on the workpiece. "In an embodiment, before the actual marking, a visible guide beam continuously and repeatedly scans the workpiece surface to form a projected image of the pattern or its domain. In another embodiment, before the actual marking, a visual display superimposes an image of the pattern and/or domain on a monitored image of the workpiece from a monitor camera. An automatic marking pattern generator is provided to automatically determine the character pattern to be marked from the entered character and marking area information." (See Ishikawa at Abstract.) A human operator

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places a workpiece *W* on a workbench 18 and positions the workpiece, as desired, in the pattern projection mode. (See Ishikawa at col. 8, lines 31-48.) Nowhere does Ishikawa describe a starting angle of less than ninety degrees, as claimed.

The Office Action acknowledges this fact and relies on Flint for this feature of the claims. Flint describes a laser imaging system with progressive multi-beam scan architecture “for displaying a two-dimensional image by alternately scanning two or more laser beams, one after the other with a time delay between adjacent beams. The beams are arranged to become incident upon a polygon scanner in a row with an approximately uniform spatial separation and an approximately equal angle between adjacent beams. The polygon scanner scans horizontally and a galvanometer-driven mirror scans vertically.” (See Flint at Abstract.) The polygon scanner is a polygon mirror 233 (a rotating disk-shaped component having a perimeter that includes a series of approximately flat reflective facets) that reflects the laser onto a galvo controlled mirror 252, which in turn reflects the laser to a screen 270 suitable for viewing. (See Flint at FIGS. 2-3 and corresponding description.)

First, it is noted that the Office Action does not actually assert that Flint describes a starting angle of less than ninety degrees for the polygon mirror 233. Rather, all that is stated is that, “the start angle and the deflecting angle is so controlled such that the X and Y-scanning is complete within the required exposure.” (See Office Action mailed February 8, 2006 at page 3.) This rejection fails to fully address the claim language, and appears to confuse the angle between the two beams in Flint with the claimed start angle. In Flint, the non-zero angle 228 is the angle chosen to provide the appropriate phase delay between the two beams, which typically is

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approximately equal to one complete screen line of the image. (See Flint at FIG. 2 and col. 10, line 52 to col. 11, line 10.) Thus, the feature identified as being absent from Ishikawa has not been clearly shown to be present in Flint.

Second, the suggested motivation to combine Flint with Ishikawa is insufficient: "It would have been obvious ... to control the start angle of the mirrors in the device of Ishikawa in the manner as taught by Flint for the purpose of limiting the exposed light beam within the required exposure area." (See Office Action mailed February 8, 2006 at page 4.) However, nothing in Ishikawa has been cited to support the contention that Ishikawa is in need of limiting the exposed light beam within the required exposure area. Moreover, the proposed combination is unreasonable since one skilled in the art would not have considered Flint's progressive multi-beam scan architecture using a polygon mirror in a laser imaging system to be applicable to Ishikawa's laser marker using two galvo controlled mirrors. The whole design of Flint's architecture for directing multiple lasers on the a spinning polygon is specific to the context of a laser imaging system that projects an image on a screen, and thus, there is no motivation to move the teachings of Flint into Ishikawa, which is directed to marking a pattern on a workpiece surface using a laser.

The current Office Action relies on improper hindsight reconstruction, using Applicant's claim as a template to reconstruct the invention by picking and choosing isolated disclosures from the prior art. This is impermissible under the law. For example, the Federal Circuit has stated,

It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed

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invention is rendered obvious. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”

(*See In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992), *quoting In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600.) The present rejection fits the court’s description of what may not be done under § 103. To support a rejection under § 103, evidence of the necessary motivation needed to lead one of ordinary skill in the art to combine the teachings must be provided.

Third, the reference to *In re Aller*, 105 USPQ 233, is inappropriate. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be *prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.) (*See* MPEP 2144.05(II)(A).) In this case, the general conditions of the claim have not been shown as clearly disclosed in the prior art.

Moreover, even if the general conditions of the claim have been disclosed in the prior art, the present application clearly describes how using a starting angle of less than ninety degrees with a galvo controlled mirror in a laser marking system achieves unexpected results. For example, using such a starting angle can enable the use of a larger diameter laser, a smaller spot

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size, and higher fluence, which allows the printing system to more easily mark a product and be able to mark more types of product or packaging materials. (*See e.g.*, U.S. App. Pub. No. 2005-0088510 at ¶s 87-91.) This fact rebuts the obviousness contention of the current Office Action. (*See e.g.*, MPEP 2144.05(III).)

Thus, independent claims 1, 3, 4, and 17 are in condition for allowance. Dependent claims 2 and 5-12 are patentable based on the above arguments and the additional recitations they contain. For example, the features of claims 5-7 are not directly addressed in the Office Action, and the reliance on *In re Boesch* is inappropriate since no evidence has been provided that the starting angle was previously recognized as a result-effective variable. (*See e.g.*, MPEP 2144.05(II)(B).) Thus, claims 5-7 are patentable for at least these additional reasons.

Dependent claim 8 recites, "the first actuator and the first mirror control printing by the second reflected beam in a vertical direction on the object." Dependent claim 9 recites, "the second actuator and the second mirror control printing by the second reflected beam in a horizontal direction on the object." Various benefits of these reversed optics configurations are clearly described in the present application. (*See* U.S. App. Pub. No. 2005-0088510 at ¶s 94-100.) In contrast, Ishikawa's first actuator 56 and first mirror 52 control printing in a horizontal direction, and Ishikawa's second actuator 58 and second mirror 54 control printing in a vertical direction, which is the opposite of the claimed subject matter. (*See* Ishikawa at col. 6, lines 44-49, and col. 1, line 40-44.) No evidence to the contrary has been provided in the current Office Action. Moreover, the citation to *In re Japikse* is inappropriate since the Office Action's restatement of the holding of this case is incorrect, and because the claimed rearranging of parts

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does in fact modify the operation of the device. (*See e.g.*, 2144.04(VT)(C) and U.S. App. Pub. No. 2005-0088510 at Figs. 9A and 9B.) Thus, claims 8-9 are patentable for at least these additional reasons.

Independent claims 18-19 are also directed to reversed optics implementations. Ishikawa fails to teach or suggest the reversed optics system and method of claims 18 and 19 because Ishikawa clearly describes the first actuator and mirror controlling scanning in the X (horizontal/parallel) direction and the second actuator and mirror controlling scanning in the Y (vertical/perpendicular) direction, which is the opposite of the claimed subject matter. O'Brien fails to cure this deficiency of Ishikawa. Nothing in O'Brien describes the optical arrangement of the pair of galvanometer mirrors 60 with respect to any motion of the workpiece 12. In fact, all that is said about these mirrors is that, "The fast positioner 50 may for example employ high resolution linear motors or a pair of galvanometer mirrors 60 (FIG. 7) that can effect unique or repetitive processing operations based on provided test or design data." (*See* O'Brien at col. 5, lines 39-42.) This does not describe the directions in which the mirrors 60 control the laser with respect to any motion of the workpiece 12.

As described in the present application, this reversed optics configuration may provide more horizontal space to print on a moving product and allows the printing system to print sooner in the print zone. (*See* U.S. App. Pub. No. 2005-0088510 at ¶s 99-100.) Neither Ishikawa nor O'Brien teach or suggest this claimed subject matter. Thus, claims 18 and 19 are in condition for allowance. Dependent claims 20-23 are patentable based on the above arguments and the additional recitations they contain. Moreover, the features of claims 20-23 are not

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directly addressed in the Office Action, and the reliance on *In re Boesch* is inappropriate since no evidence has been provided that the starting angle was previously recognized as a result-effective variable. (See e.g., MPEP 2144.05(II)(B).) Thus, claims 20-23 are patentable for at least these additional reasons.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific issue or comment does not signify agreement with or concession of that issue or comment. Because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

It is respectfully suggested for all of these reasons, that the current rejections are overcome, that none of the cited art teaches or suggests the features which are claimed, and therefore that all of these claims are in condition for allowance. A formal notice of allowance is thus respectfully requested. In the absence of such, a telephone interview to discuss the cited art and the independent claims is respectfully requested.

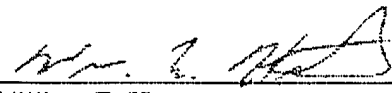
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Please apply the fee for a 1-Month Extension of Time, and any other necessary charges or credits, to deposit account 06-1050.

Respectfully submitted,

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